

Think of an application  
The answer is BISON



FROM FLOOR TO ROOF AND EVERYTHING IN BETWEEN



Strength Of Cement & Ease Of Wood



# Internal applications



Partitions / Cabins



False Ceiling

## Special Applications



Cubicles



Security Cabin



Kitchen Cabinets



Doors



Panels



False Ceiling

Termite Proof



Fire Resistant



Moisture Resistant



Strong & durable



Weather Resistant



Fungus Resistant



Sound Insulation



# Introduction

## Bison Panel Plants



Poanta Sahib, Himachal Pradesh



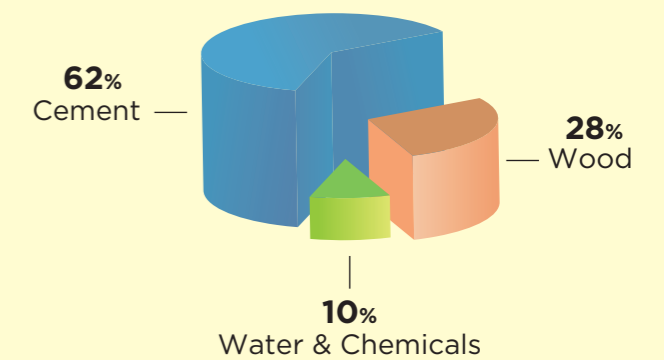
Mattapalli, Telangana

This manual contains general information and guidelines for understanding Bison Panel to get best results in its application

### Bison Panel conforms to IS 14276-1995

Bison Panel is a cement bonded particle board made out of 62% cement 28% wood. The wood used is of fast growing species like Eucalyptus and Poplar. Due to adoption of special manufacturing process, the panel acquires the strength, the durability of cement and easy workability of wood- a combination of qualities absent in other boards.

This multipurpose building board - a proven product in countries around the world is introduced in India by NCL with imported technology from Bison Werke of Germany.



Density	1250±10% Kgs./m <sup>3</sup> (1100 Kgs minimum as per BIS)
Moisture content	9% ± 3% at Factory Point
Modulus of Elasticity (bending)	3000 N/mm <sup>2</sup>
Bending strength	9N/mm <sup>2</sup>
Transverse tensile strength (perpendicular to surface)	0.4 N/mm <sup>2</sup>
Compressive strength (perpendicular to surface)	15 N/mm <sup>2</sup>
Surface Alkalinity pH	Between 11 and 13
Nail holding power (perpendicular to surface)	205 Kgs
Screw holding power (perpendicular to surface)	312 Kgs

# Kitchens



Today's modern kitchens have become the pride of the home makers. To possess latest gadgets and fittings available for kitchens is the dream of every housewife.

Hitherto for the core infrastructure or the shell for kitchen arrangements has been wood or plywood over which elegant overlays and claddings are fixed to present a posh look.

But unfortunately the kitchen cabinets are often short lived due to menace of the termites and rats. Of late it is realized by users, that Bison Panel -the Cement Bonded Particle Board is THE BEST and everlasting as the core for kitchen platforms and cabinets.

Number of companies dealing with ready made kitchen cabinets have already switched over to Bison Panels.

TERMITE PROOF | FIRE RESISTANT | MOISTURE RESISTANT | STRONG & DURABLE



UNDERLAYS OF KITCHEN PLATFORMS

# False ceilings



False Ceiling



False Ceiling - Grid Type

The recommended false ceiling system for Bison Panel is the usual suspended grid system which has gained popularity in building industry.

The thickness of the Bison Panel for false ceiling can be 6mm or 8mm depending on the requirement of thermal comfort. For better thermal comfort a 32mm thick

thermocool may be cut to size and pasted on the top of Bison Panel stuck with diluted PVA based resin. The false ceiling can be either 'T' grid type or flush jointed type. In either case the longitudinal supports shall be spaced at 610mm intervals and cross supports at 610mm or 1220mm centres.

## GRID SYSTEM

Grid can be made either with steel or aluminium Tee sections or with timber with suitable wall line supports. The suspension arrangement can be with G.I. wires of adequate gauge taken to required level from the soffit.

Bison Panels of 6mm thick are recommended for false ceilings.

The grid shall be 610x610mm or 610x1220mm (2'0x2'0 or 2'0x4'0)

In areas where change of humidity and temperature are frequent, it is recommended to adopt 610mmx610mm grid only.

The T-Sections (30x35mm) for the grid frame rolled from 0.5 or 0.7mm G.I. Sheet with prepainted Steel caps are available in the market. They come in a kit form comprising of longitudinal runners, cross bits and junction components.

In case, Aluminium T-sections are used for the grid, the minimum thickness of the section shall be 1.2 mm and size 30x35mm.

Suspenders can be either 8 swg G.I. wire or 0.7x12 mm G.I. flats. They are available in the market as coils.

The maximum distance allowed between suspenders in longitudinal direction and cross direction is 1220mm or 4'0. Closer intervals may be adopted depending on the soffit conditions.

When false ceiling is under RCC slab, suspenders can be tied to suitable clamps fixed in the slab by drilling, screw fixing with self expanding caps. The screws and self expanding caps are available in the market in required sizes.

It is necessary to introduce a turn buckle in the suspender for easy and faster levelling of the grid. Ordinary G.I. J-bolt can serve as turn buckle.

It is important to fix wall angle perfectly to level as the level of the entire grid depends on the level of wall angle.

Wherever the lighting openings occur, extra suspenders will have to be provided to take the load of the outfits.

The panels will have to be painted in dry condition on both sides and the edges in particular before inserting them in the grid.

A clearance of 2 mm shall be given between the board and the grid on all sides for taking care of thermal expansion if any and / for easy insertion.

# Partitions & Work stations

The excellent qualities of fire resistance and acoustic insulation apart from natural resistance to weather, fungus, termite and vermin attack, makes Bison Panel an ideal choice for partitions, in residential, commercial, industrial complexes and public buildings.



DOUBLE SKIN OR SINGLE SKIN

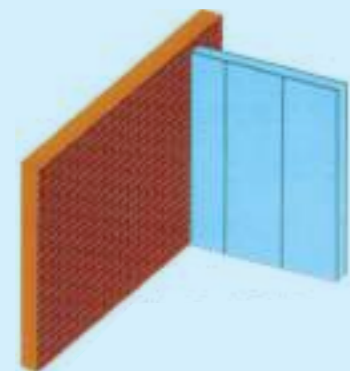
WITH TIMBER OR STEEL STUDS

NO FIRE ACCIDENTS

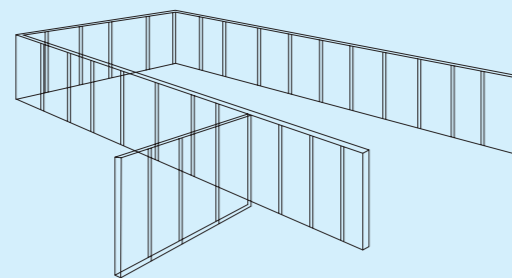
FASTER TO CONSTRUCT

SAFE AND ECONOMICAL

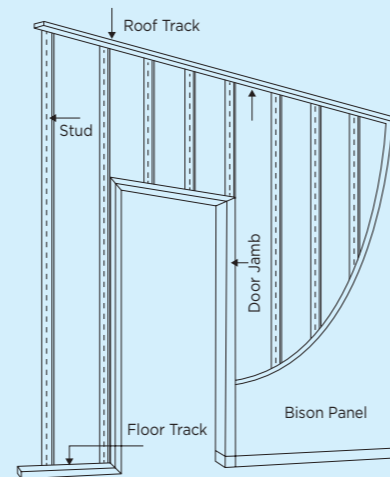
Bison Panel is an ideal material for many types of dry wall partitions including double skin, single skin, with steel and timber studs. These partitions are light in weight and economical.



Bison Panel Partition



Stud & Track Partition



Frame Work

**ASBESTOS, SILICA FREE & ECO FRIENDLY**

COST EFFECTIVE | HIGH FIRE RATING | ACOUSTIC INSULATION

TERMITE PROOF | DURABLE & ELEGANT

# Furniture & Wardrobes

Bison Panel is highly resistant to termite, vermin and rat bites. Apart from this, it is fire and moisture resistant. Since, it is heavier and stronger than wood, it is recommended for applications like fixed furniture and work-stations. It will serve excellently as planks required for built-in wardrobe in masonry walls and storage racks.

These applications can be suitably decorated with paint or lamination to match with the latest trends in interior designs.



Dressing Room



Cupboards



Book Rack



Office Fixed Furniture



Multiple Racks



Cupboards / Racks



Small Cupboards



Benches & Desks

# Flooring



## Cavity Floors Mezzanine Floors

Bison Panel with supports at 600 mm intervals can take 700 Kgs./Sqm. of live load by choosing right thickness of the panel.



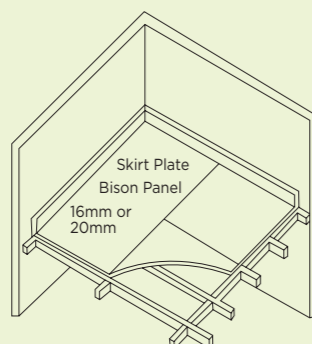
### LOADING TABLE

#### Thickness: 18mm

Span in mm L	2 to 3 Supports		Multiple Supports	
	Max.Load (Kgs/m <sup>2</sup> )	L 300	Max.Load (Kgs/m <sup>2</sup> )	L 300
300	915	895	1067	1067
400	514	421	600	600
500	329	215	430	384
600	228	125	266	264

#### Thickness: 20mm

300	1088	1088	1269	1269
400	612	543	714	714
500	392	278	547	457
600	272	161	317	317



#### Thickness: 30mm

Span in mm L	2 to 3 Supports		Multiple Supports	
	Max.Load (Kgs/m <sup>2</sup> )	L 300	Max.Load (Kgs/m <sup>2</sup> )	L 300
300	2411	2411	2812	2812
400	1356	1356	1582	1582
500	868	865	1012	1012
600	603	539	703	703

#### Thickness: 40mm

300	2720	2720	3182	3182
400	1625	1625	1909	1909
500	972	960	1142	1142
600	680	635	795	795

- Column-1 Shows the span, i.e., the distance between supports.
- Column-2 Shows the uniformly distributed safe load and board can take per sq. meter when the individual board is supported by two or three supports.
- Column-3 Shows uniformly distributed load the board can take when the deflection of sag is restricted to 1mm for every 300mm of span length.
- Column-4 Shows the uniformly distributed load the board can take per sq. meter when the individual board is supported by 4 or more supports.
- Column-5 Shows the uniformly distributed load the board can take when the deflection of sag is restricted to 1mm for every 300mm of span length.

# All proof for all time

BISON PANEL, a Cement Bonded Particle Board made in technical collaboration with M/s. BISON WERKE of GERMANY, combines the strength of cement and workability of wood. Its unique combination of properties gives it all round superiority over most other boards.

It's versatility in both internal and external applications is exemplified the world over. We are the only company supplying 40mm thick boards.

### Sizes Available

- 2440 x 1220 mm (8' x 4');
- 3050 x 1220 mm (10' x 4')

### Thickness Available

- 4, 6, 8, 10, 12, 16,
- 18, 20, 25, 30, 40mm



Roof Sarking



Partitions



Kitchen Platforms



Exterior Cladding



Cladding For Staircase Wall



Flooring



Cupboards



Book Rack



Duct Cover



Doors



CNC Designs



# Doors & Windows

Bison Panel proves to be an ideal replacement for wood panels in doors and windows. Bison panels, with its moisture proof advantage, are very effective in areas of high moisture and humidity, such as kitchens, bathrooms and balcony doors.

These panels are well equipped to handle weather hindrances and possess high dimensional stability. In addition the panels are fire, termite and impact resistant. Bison Panel products are highly sound insulated and are much more durable and economical as compared to other products.



# Recommended Thickness

S. No.	Application	Thickness in MM									
		6	8	10	12	16	18	20	25	30	40
1	Partitions			●	●						
2	Fire Rated Partitions				●	●					
3	Wall Claddings			●	●						
4	Fascia Panels				●	●					
5	Floors					●	●	●	●	●	●
6	False Ceilings	●	●								
7	Door Panel Inserts		●	●	●						
8	Flush Doors					●					
9	Roof Sarking			●	●	●					
10	Wardrobe Planks				●	●	●	●			
11	Sign Boards				●	●					
12	Kitchen Cabinets					●	●	●			
13	Furniture		●	●	●	●	●	●			
14	Table Tops				●	●					
15	Fixed Furniture			●	●	●	●	●	●		
16	Duct Covers			●	●						
17	Stair Cases					●	●	●			
18	Cabins & Booths			●	●	●					
19	Prefab Wall Panels			●	●	●					



Transit Camp



Column Cladding



Transit Camp

## BISON PANEL: VOLUME & WEIGHT

Thickness	Volume per board		Weight per board	
	(8'x4') 2440 x 1220mm	(10'x4') 3050 x 1220mm	(8'x4') 2440 x 1220mm	(10'x4') 3050 x 1220mm
	(Cu. mtrs.)		(in Kgs)	
6mm	0.0179	0.0223	23.22	29.02
8mm	0.0238	0.0297	30.95	38.69
10mm	0.0297	0.0372	38.69	48.36
12mm	0.0357	0.0446	46.43	58.03
16mm	0.0476	0.0595	61.90	77.38
20mm	0.0595	0.0744	77.38	96.73
30mm	0.0892	0.1116	116.06	145.08
40mm	0.1190	0.1488	154.75	193.44

# Prefab Shelters

One of the prime use of Bison Panel is its use in construction of Prefab Homes. NCL Prefab Shelters are constructed in track and panel system with advantages of simplicity in construction, easy transportation, even in difficult terrains, remarkable speed of erection requiring no high skills or machinery.

The panel walls of the shelters are made in double skin with Bison Panels and placing of expanded polystyrene in between.

Assembly of the wall panels and roof trusses etc., will be by anti-corrosive steel profiles and structural steel sections as required. The roof will be with G.I. or color coated steel sheets.

The main advantages of the NCL Prefab Shelters are many: They are terrain and climate compatible, durable, comfortable and cost effective. Due to simplicity in design and speed of erection, these shelters are ideal for providing instant accommodation, cutting the project cost.



NCL  
**Prefab**  
HOUSES



BISON Lam :Prelaminated Bison Panels are manufactured by NCL under the Brand name BISON Lam. Bison Lam contributes to exterior grade qualities like fire, water, termite and fungus resistance of the plain Bison Panel with a beautiful look and finishes of Laminated Board.

Bison Lam is available in thicknesses viz., 6mm, 10mm, 12mm and 16mm in shades like Natural Teak, Silver Gray, Sea Beach, White and Ivory. The Lamination surface is impermeable to moisture and highly resistant to staining from Tea, Coffee, Washing Powder, Detergents etc. The surface can be cleaned with a wet cloth.



Kitchen Cupboards



Conference Room



Bison Designer Board is a top quality product with the same physical properties and virtues of Bison Panel Plain Boards. These boards have diverse applications ranging from partitions to false ceilings, wall claddings, and building facades. The boards are available in a range of self-embossed designs. Keeping aesthetics and practicality in mind, Bison Designer Boards have been designed to complement and enhance the ambience of the structures they grace, be it an office or a home.

The boards are strong, durable, and offer a quality finish. They are available in a natural grey colour in dimensions: 8x4ft (2240x1220mm) & 10x4ft (3050x1220mm) and thicknesses : 6mm, 8mm, 10mm, 12mm, 16mm.



Lumber



NCL manufactures drywalls using Bison cement bonded particle boards with a cementitious core to form a composite wall panel. These sandwich panels with a tongue and groove joint makes faster installation.

These are light in weight but strong and are real solution for time solving of internal wall construction in building industry.



Walls



Bison Plan plank do not crack or warp or its grain texture do not alter form for years in natural climatic conditions. Bison Plank is absolutely termite and fire resistant,

resistant to fungus, rat bites and free from toxic materials like asbestos.



Cladding



Decking



Ceilings



Fascia Siding



Wall Partitions



Fencing

## NCL Group Other Products

**OPC**  
**PPC**  
**53-S**

NCL Industries Limited, the flagship Company of NCL Group has been serving construction industry in Andhra Pradesh for the past 28 years. The company which is operating from two units, one at Simhapuri, Nalgonda district, Telangana and the other at Kondapalli, Krishna District, in Andhra Pradesh having an installed capacity of 2 million tons per annum.

In order to deliver a superior customer experience as well as create and seize opportunities that add value to the offerings of the core business, Nagarjuna Cement has ventured into Ready Mix Concrete segment with great success. The two most modern RMC batching plants at Hyderabad and Visakhapatnam are meeting the requirements of its customers with ease.

NCL manufactures Seccolor roll formed steel profiles pre painted or powder coated for manufacture of Doors, Windows, Partitions, False ceilings etc. with world class elegance and Italian Technology.

NCL FLY ASH BRICKS are made of materials in light weight, eco-friendly, good insulation from sound & heat, consistent quality, and of all made with 'Nagarjuna Cement'. Our FLY ASH BRICKS contribute overall project cost savings upto 32% (steel: 20-25% & concrete: 10%), It's a green building product .

The range of products include Ready mix plasters, interior and exterior textures, water proofing coats, acrylic paints, key coats, under coats, primers, tile fixes etc.

NCL Homes (Pvt) Ltd also a group company looks after construction of residential complexes and townships. It has completed number of projects in twin cities and is expanding its activity in Karnataka state and Tamilnadu.

NCL Manufactures uPVC profiles in technical collaboration with M/s. Adopen of Turkey. Doors and windows made with these profiles are widely used world over for multi storied buildings. They are strong and maintenance free.

Established for setting up Mini Hydel Projects for generation of power from renewable sources of energy, NCL's Energy Division has established two hydel power projects - Srisaillam (Telangana) producing 7.5 MW and Tungabhadra dam (Karnataka) generating 8.25 MW.





Strength Of Cement & Ease Of Wood

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